

THE INCIDENCE OF BATTLE WOUNDS ADMITTED TO THE 20TH GENERAL HOSPITAL

(November 1943 through April 1945)

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The total number of battle casualties which have been treated in this hospital since the beginning of the North Burma campaign (4347) is no doubt small when compared to the number of wounded who passed through some of the general hospitals in the European Theater. However we believe that we have had a unique experience in several respects. I know of no other general hospital which has received its wounded as early and has been able to complete the definitive treatment in as high a percent of patients as has been the case in this hospital.

The entire Burma campaign was jungle warfare. The system of medical evacuation as practiced in the last war did not exist. The use of well equipped mobile evacuation hospitals situated relatively close to the fighting line as was possible in the European Theater was totally out of the question here. The burden of the early surgical care of these patients fell in the early days to the Seagrave Unit and the 151st Medical Battalion, and later to the portable surgical hospitals. These portable surgical hospitals were small units with 4 officers and 35 enlisted men. Many times these units were broken into 2 groups to operate in 2 different areas. These men often had to march all day on a jungle trail, then set up at night and immediately start operating upon the wounded. They were inadequately equipped due to the fact that their entire equipment had to be carried on their backs, the backs of native bearers or by a limited number of horses, except for the supplies dropped by parachute.

Most of the patients were brought to the portable surgical hospitals by Chinese litter bearers. Most of the work was done at night since the litter bearers usually brought in the patients after dark. Except for the occasional instances when the portable units were relatively fixed, all operating had to be done only with flash lights.

The fact that the battle casualties of the Burma campaign had such excellent medical care and enjoyed so low a mortality, is largely due to the men who worked in the portable surgical hospitals. It is obvious that a hospital working under such conditions could not keep its patients long. It was equally obvious that few patients would survive transportation over mountain jungle trails and the almost impassable road to the field and evacuation hospitals well to the rear. It was for this reason that the system of air evacuation was perfected.

As the result of air evacuation the vast majority of our patients were transferred to us directly from the portable surgical hospitals. In fact close to one-tenth of our battle casualties by-passed the portable

surgical hospital and arrived here for their initial surgery. At the time when Merrill's Marauders made daring end-runs by forced marches it was impossible for the hospitals to accompany them, so that we received those patients with no other care than the battalion surgeon was equipped to give them.

These were the exceptions however. As a rule the soldier was wounded one day, operated upon in a portable surgical hospital that evening and flown out to us the next day, arriving here late in the afternoon. Thus over 50 percent of our patients reached us within 36 hours of the time they were wounded. In some instances this rapid evacuation may have been detrimental to the patient but it was often necessary because of the nature of the campaign.

In addition to receiving our patients early we were in the unusual position of being able to keep most of them for their entire definitive treatment. More than 75 percent of our casualties were Chinese soldiers. These have remained in this hospital for their entire definitive treatment, being discharged through the convalescent hospital to duty or to the Rehabilitation Center in the event of permanent disability. Even with our American patients, because of the difficulties involved in travel to the Zone of the Interior, the major portion of the definitive care was given in this hospital. When return to duty seemed probable within six months the patients entire care was received here.

We received a rich experience in dealing with soldiers of different nationalities. About 75 percent of our patients were Chinese, most of the rest were Americans, but there was a goodly number of Kachins from the 101 Detachment and Japanese P.O.W., with a scattering of British, Gurkhas, Indian and Shans.

We began to receive battle casualties in November 1943. There was first a trickle, which gradually increased in volume until the peak was reached during the Myitkyina campaign, when this hospital had about 2700 patients. But at no time did we receive the overwhelming number of casualties which so often in warfare completely disrupts the efficiency of first rate medical care. Seldom if ever was any medical officer in this hospital so busy that it was a problem of rendering the most good to the greatest number. We consider ourselves extremely fortunate that we not only had time to treat our patients but we had time to think about them and to consider ways and means of treating future patients in a better manner.

Table I includes the battle casualties admitted to this hospital during the North Burma campaign covering the period November 1943 to August 1944. Table II includes the battle casualties admitted to this hospital during the Central Burma campaign covering the period November 1944 to March 1945.

These data are classified by giving the location of the major wound only so that we have here the same number of wounds as we have patients.

In subsequent papers presented in this conference the total number of wounds of a certain type may be higher than shown here.

The incidence of cranial and thoracic cavity wounds are somewhat higher than in most published series due to some selectivity in admission to this hospital early in the campaign when certain other installations taking care of Chinese in this area did not have a neurosurgeon or thoracic surgeon.

The incidence of various miscellaneous wounds is presented. It is interesting to note that 31.9% of all wounds were of the soft tissues of the extremities. Also that peripheral nerve injury was twice as common as major vessel injury.

There were a few burns including some produced by phosphorus. The low incidence of blast injury merely indicates that it was small arm warfare to a great part due to the jungle terrain. Gas gangrene we believe to have been due to one of three causes (1) inadequate debridement, (2) damage to major vessels, (3) constricting dressings or casts.

It is impossible to compare the mortality rate of various hospitals unless they are treating similar types of patients received from the same source. For example many of our patients were transported too early before they were over the effects of the shock and hemorrhage of their original wounds or operation. This was necessary because of the tactical situation. On several occasions we received patients with major abdominal or chest wounds who were still under anaesthesia. Many of the 38 patients who died within 24 hours after admission to this hospital, under ordinary circumstances would not appear in the mortality of this hospital. Likewise it is obvious that this mortality represents only a part of the total, for many died before reaching the portable surgical hospitals; others died there and some died during evacuation.

The immediate cause of death in 119 deaths will be noted. Shock incident to the severity of their original wounds accounted for 42 patients, or 36% of the deaths. Many of these arrived here in extremis and died within a few hours. Of the 11 patients who died of hemorrhage, 7 died as the result of the primary hemorrhage of their original wounds. They all died within a few hours of admission. They are listed under hemorrhages rather than shock because it is known they did have massive hemorrhages. Secondary hemorrhages in this hospital accounted for the remaining four.

Infective sepsis was responsible for 43 deaths. Of these, 10 were due to peritonitis, 13 due to infection in the brain, 9 due to the sepsis of cord injuries and 11 from other sites of infection.

It is interesting to note that when the incidence of wounds of the extremities are opposed to the head, neck, and trunk are compared to the total surface area of a silhouette, they are practically the same. The surface area is based on the method commonly used to estimate burned area.

This is probably merely a coincidence. When the figures are broken down, it is noted that the upper extremity wound, just as frequently as the lower, although presenting only one-half the target.

SUMMARY:

We have had an unusual opportunity in that while we had only 4347 casualties, we received them relatively early and were able to give the entire definitive treatment in a high percentage of cases. We received these casualties in a fairly even stream so that we were never too busy. We not only were able to treat our patients but to think about them. We were able to give to the sickest patients the time and study which they deserved.

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TABLE I and II

BATTLE CASUALTY ADMISSIONS

Classified by the most significant injury presented and covering the period of the
North Burma Campaign (November 43 through August 44) and the Central Burma Campaign
(November 44 to April 45).

NORTH BURMA CAMPAIGN (NOV 43 THRU AUG 45)

CENTRAL BURMA CAMPAIGN

MASTER SHEET TABLE I & II

	Number of cases		Percent		Total		Number of Cases		Percent		Total		No. of Cases		Percent	
	Amer.	Chin.	Amer.	Chin.	Amer.	Chin.	Amer.	Chin.	Amer.	Chin.	Amer.	Chin.	Amer.	Chin.	Amer.	Chin.
Wounds Penetrating Bony Cavity:																
Cranial	20	168	2.5	5.9	5.1	9	23	32	3.8	5.4	4.8	29	191	220	2.7	5.8
Thoracic	45	202	5.5	7.0	6.7	8	33	41	3.3	7.7	6.1	53	235	288	5.0	7.1
Abdominal	26	94	3.2	3.3	3.3	16	10	26	6.6	2.3	3.9	42	104	146	4.0	3.2
Spinal Canal	1	38	0.1	1.3	1.1	1	5	6	0.4	1.2	0.9	2	43	45	0.2	1.3
Joints	18	106	2.2	3.8	3.4	7	21	28	2.9	4.7	4.2	25	129	154	2.4	3.9
Wounds with Compound Fracture of:																
Jaws	13	60	1.6	2.1	2.0	0	7	7	0	1.6	1.0	13	67	80	1.2	2.0
Clavicle, Scapula and humerus	25	138	3.0	4.8	4.4	18	18	36	7.5	4.2	5.4	43	156	199	4.1	4.7
Radius and Ulna	25	123	3.0	4.3	4.0	6	22	28	2.5	5.1	4.2	31	145	176	2.9	4.4
Carpals & Metacarpals	19	70	2.3	2.4	2.4	3	15	18	1.2	3.5	2.7	22	85	107	2.1	2.6
Pelvis - Femur	18	88	2.2	3.1	2.9	8	18	26	3.3	4.2	3.9	26	106	132	2.4	3.2
Tibia - Fibula	40	84	4.9	2.9	3.3	8	16	24	3.3	3.7	3.6	48	100	148	4.5	3.0
Tarsals - Metatarsals	28	38	3.4	1.3	1.8	7	5	12	2.9	1.2	1.8	35	43	78	3.3	1.3

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Table I & II

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BATTLE CASUALTY ADMISSIONS

Classified by the most significant injury presented and covering the period of the North Burma Campaign (Nov 43 thru Aug 44) and the Central Burma Campaign (November 1944 to April 1945).

	NORTH BURMA CAMPAIGN (NOV 43 THRU AUG 45)					CENTRAL BURMA CAMPAIGN					MASTER SHEET TABLE I & II				
	Number of cases		Percent		Tot.	No. of cases		Percent		Tot.	No. of Cases		Percent		Tot.
	Amer.	Chin.	Amer.	Chin.		Amer.	Chin.	Amer.	Chin.		Amer.	Chin.	Amer.	Chin.	
Wounds involving:															
Eyes, Orbits	17	107	2.1	3.7	3.4	2	22	0.8	5.1	3.6	19	129	1.8	3.9	3.4
Face, Scalp, Neck	45	176	5.5	6.1	6.0	14	10	5.8	2.3	3.6	59	186	5.6	5.7	5.6
Chest Wall	57	141	7.0	4.9	5.4	17	19	7.1	4.4	5.4	74	160	7.0	4.9	5.4
Abdominal Wall	17	67	2.1	2.3	2.3	5	11	2.1	2.6	2.4	22	78	2.1	2.4	2.3
Buttocks and Flank	32	103	3.9	3.6	2.7	9	31	3.7	7.3	6.0	41	134	3.9	4.1	4.0
Major Blood Vessels	5	41	0.6	1.4	1.3	1	9	0.4	2.1	1.5	6	50	0.6	1.4	1.3
Peripheral Nerves	10	83	1.2	2.9	2.5	2	23	0.8	5.4	3.7	12	106	1.1	3.2	2.7
Soft Tissue of Extremities	284	888	34.8	31.0	31.9	89	100	36.9	23.4	28.3	373	988	35.3	30.0	31.3
Injuries associated with:															
Burns	8	13	1.0	0.5	0.6	2	4	0.8	0.9	0.9	10	17	0.9	0.5	0.6
Elast(Concussion, Deafness etc)	46	8	5.6	0.3	1.5	8	3	3.3	0.7	1.6	54	11	5.1	0.3	1.5
Anaerobic Infection (Gas Gangrene)	16	26	2.0	0.9	1.1	1	2	0.4	0.5	0.4	17	28	1.6	0.9	1.0
	815	2864	22.2	77.8	100.00	241	427	36.1	63.9	100.00	1056	3291	24.3	75.7	100.0